



# Understanding the Total Costs of Commercial Fishing in the Northeast

## **NEFSC Social Sciences Branch**

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## **Motivation for NEFSC's Economic and Social Performance Measures Program**

***How can we capture the experience of the  
human participants in the NE's fisheries?***

***What does it mean for our fisheries to  
“perform” successfully?***

### **Challenges:**

- Stated objectives and goals sometimes appear to be contradictory.
- Identified goals may mean different things to different groups.
- Gaps in existing data, particularly for social outcomes.
- Need to balance progress toward economic and social outcomes with biological/ecological outcomes.



## **Motivation for NEFSC's PM Program**

- ***Proactive Analysis:***
  - Economic & socio-cultural information on fisheries performance provided to managers & stakeholders on an ongoing basis - not only as a reaction to a proposed regulatory action.
  - Need to provide this info across fisheries & over time.
- ***Communication:***
  - Information that's trusted and can serve as common ground for discussion & a "go-to" source for inquiries about what's going on in the fisheries.



## **Motivation for NEFSC's PM Program**

- ***Assessment:***
  - Are we achieving MSA Standards and meeting FMP goals? What are the issues, successes, and failures?
- ***Comparison of Performance under Various Regulatory Mechanisms:***
  - Catch Share & Non-Catch Share Fisheries

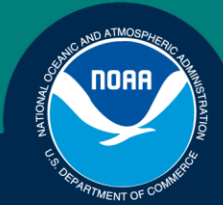
# **NEFSC Economic and Social Fisheries Performance Measures**





## **What has been done?**

- 2009-2010: Initial identification & definition of social & economic performance measures for NE fisheries.
- 2012-2013: New data collections for commercial fisheries implemented.
- 2011-2014: Fishery performance reports for groundfish released annually for FYs 2010-2012.



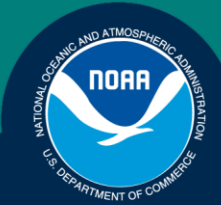
## **What needs to be done?**

- 2014-2015: Analyze data collected over the past two years.
  - cost survey (2 years)
  - socio-economic surveys of crew & owners (1 year)

Develop profiles for different segments of the fleet, beginning with groundfish, in collaboration with industry.

Identify priority PMs for decision makers.

Automate the production of key PMs across the Northeast's fisheries.



## Vessel Annual Cost Survey

- Vessels were grouped by gear group and vessel size to create 12 strata.

- Gear Groups:

Dredge

Pot/Trap

Longline\*

Gillnet

Trawl

Purse/Seine\*

Handgear

- Vessel Sizes:

Larger than average

Smaller than average

\*Due to the small size of the gear group, the group was not split further according to vessel size.





## **Vessel Annual Cost Survey**

- Types of information collected:
  - Vessel Information
  - Repair/Maintenance/Upgrade/Improvement Costs
  - Fishing Business Related Costs
  - Operating Costs (e.g., fuel, ice, bait, fishing supplies)
  - Crew Payment/Lay Systems

## What does the annual cost data get us?

- The ability to communicate to decision makers the total costs fishermen face, which vary by gear group and vessel size.

$$\begin{aligned}\text{Profit} &= \text{Total Revenue} - \text{Total Costs} \\ &= \text{Total Revenue} - (\text{Annual Costs} + \\ &\quad \text{Operating/Trip Costs} + \text{Payments to Crew})\end{aligned}$$

- Allows for a profitability analysis of segments of the Northeast commercial fleet.

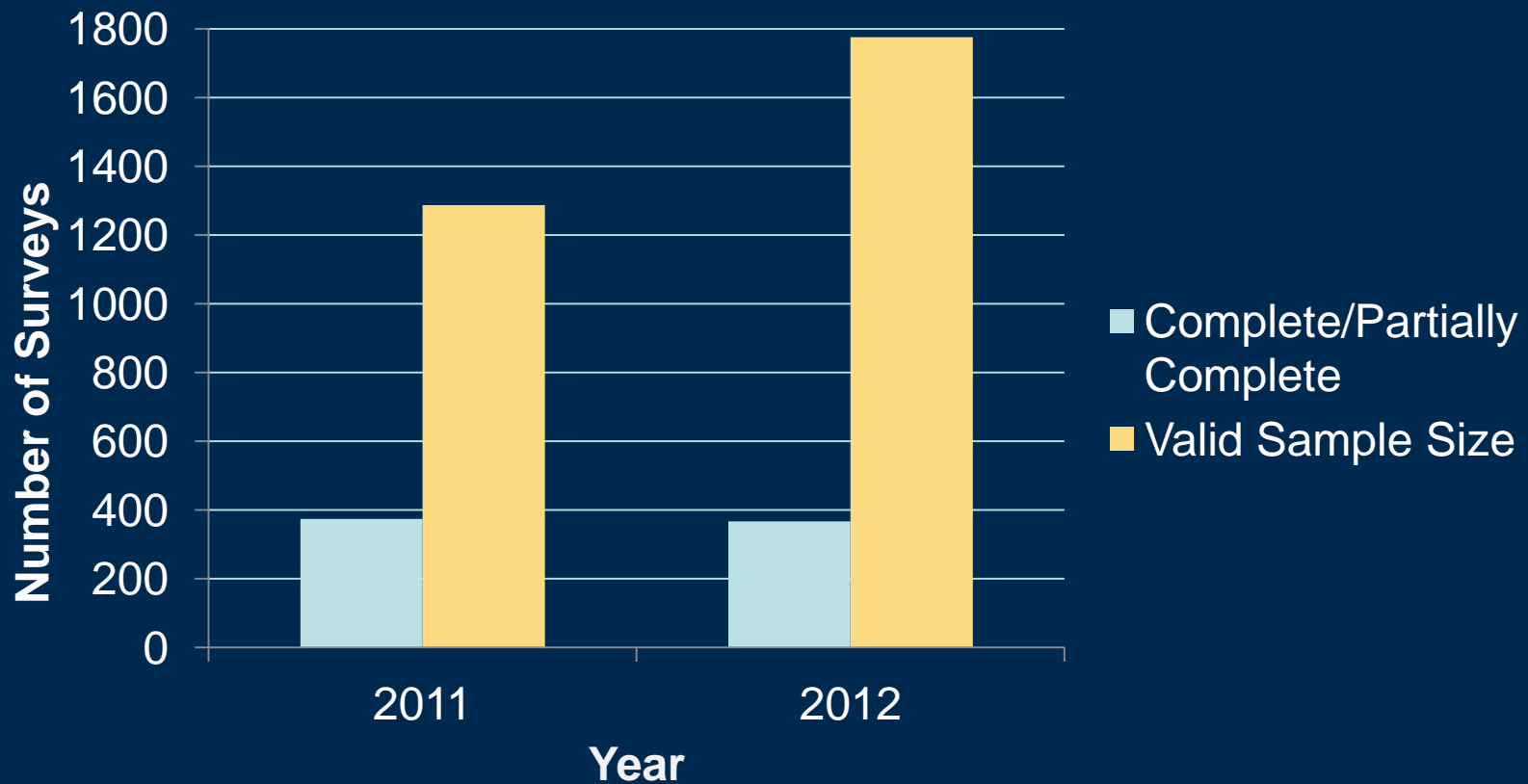


## **What's included in annual costs?**

- Repair and Maintenance Costs
- Upgrade and Improvement Costs
- Fishing Business Costs
  - Mooring/Dockage Fees
  - Vessel Insurance Premiums
  - Permit and License Fees
  - Quota or DAS Lease Payments
  - Vessel Activity or Quota Monitoring Costs
  - Workshop/Storage and Office Expenses
  - Business Vehicle Usage Costs and Business Travel Costs
  - Association Fees and Professional Fees
  - Principal and Interest Paid on Business Loans



## Survey Response Rates Commercial Fishing Vessel Owners



## **PRELIMINARY RESULTS**

### **Survey Response Rates by Principal Port State**

<b>SURVEY RESPONSE RATE BY PRINCIPAL PORT STATE</b>				
<b>STATE</b>	<b>Responses 2012</b>	<b>Sample 2012</b>	<b>Response Rate 2012</b>	<b>Response Rate 2011</b>
<b>CT</b>	3	14	21.43%	25%
<b>DE</b>	0	1	0%	54.55%
<b>FL</b>	4	4	100%	33.33%
<b>MA</b>	94	463	20.30%	27.71%
<b>MD</b>	1	12	8.33%	34.62%
<b>ME</b>	157	808	19.43%	31.21%
<b>NC</b>	6	31	19.35%	30.56%
<b>NH</b>	10	50	20%	20.93%
<b>NJ</b>	27	123	21.95%	33.53%
<b>NY</b>	20	107	18.69%	28.70%
<b>RI</b>	28	104	26.92%	29.41%
<b>VA</b>	9	56	16.07%	30.56%
<b>Undef/Other</b>	0	3	0.00%	33.33%
<b>TOTAL</b>	<b>359*</b>	<b>1776</b>		

\*Note: Eight surveys were returned anonymously and principal port state for the vessel could not be determined.

# **PRELIMINARY RESULTS**

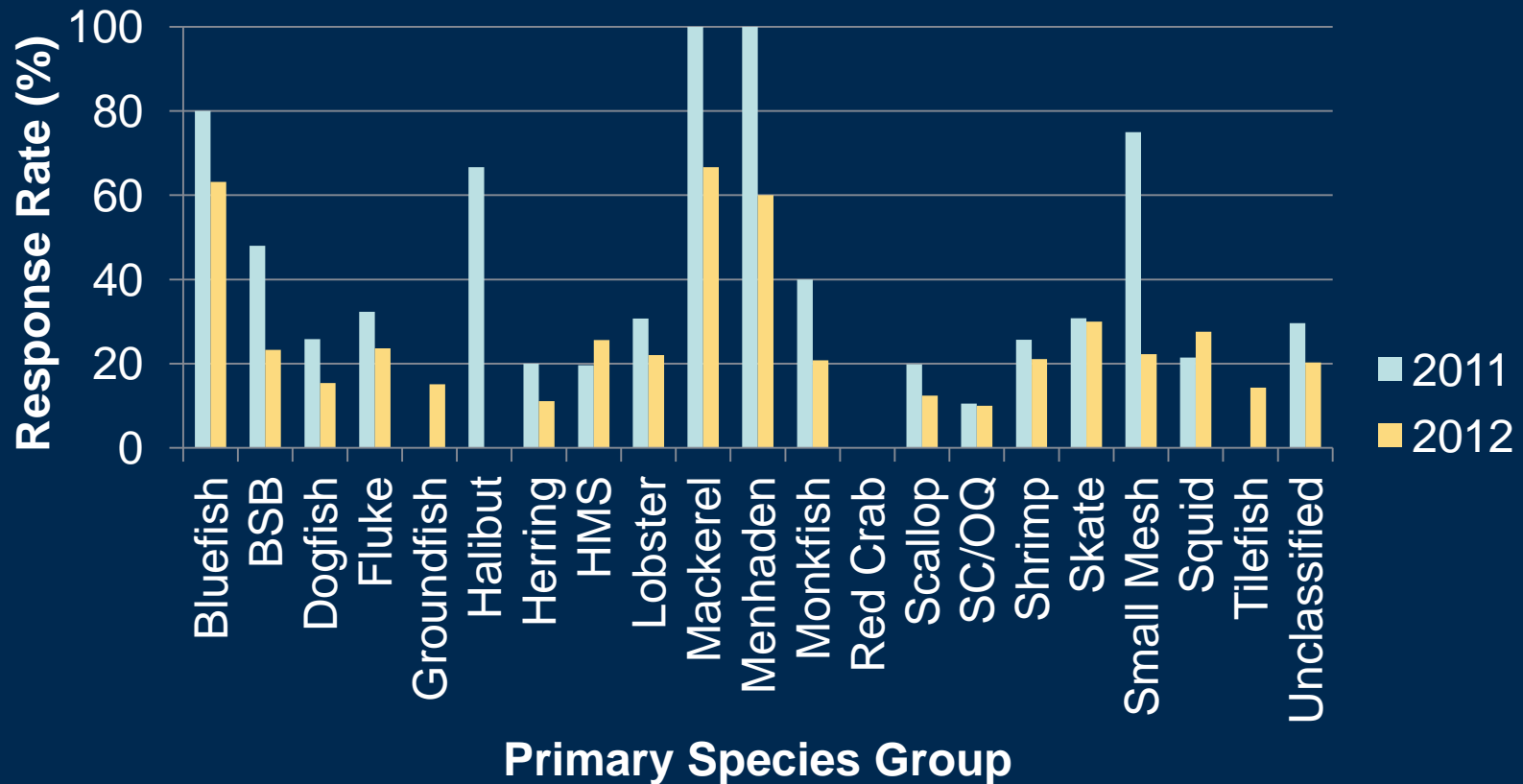
## **Survey Response Rates by Gear Group**

<b>Gear Group</b>	<b>Responses 2012</b>	<b>Sample Size 2012</b>	<b>Response Rate 2012</b>	<b>Response Rate 2011</b>
<b>Dredge</b>	20	169	11.83%	17.70%
<b>Gillnet</b>	27	123	21.95%	33.90%
<b>Handgear</b>	58	211	27.49%	33.10%
<b>Longline</b>	3	33	9.09%	26.32%
<b>Pot/Trap</b>	227	1037	21.89%	30.61%
<b>Trawl</b>	37	198	18.69%	30.35%
<b>Purse/Seine</b>	3	5	60.00%	50.00%
<b>Total</b>	<b>1776</b>	<b>375</b>		



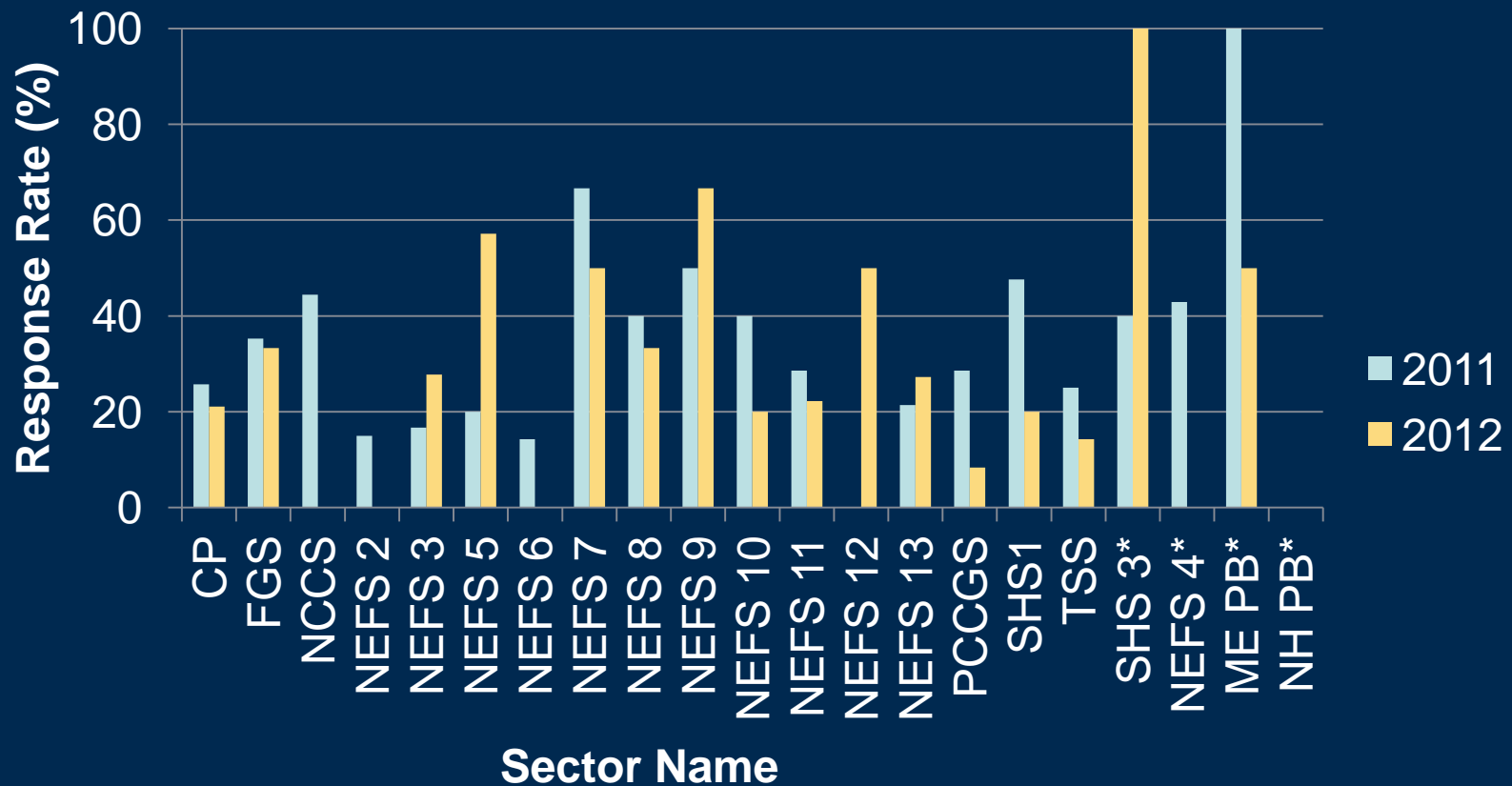
## PRELIMINARY RESULTS

### Response Rates by Primary Species Group





## **PRELIMINARY RESULTS** **Survey Response Rates by Sector**

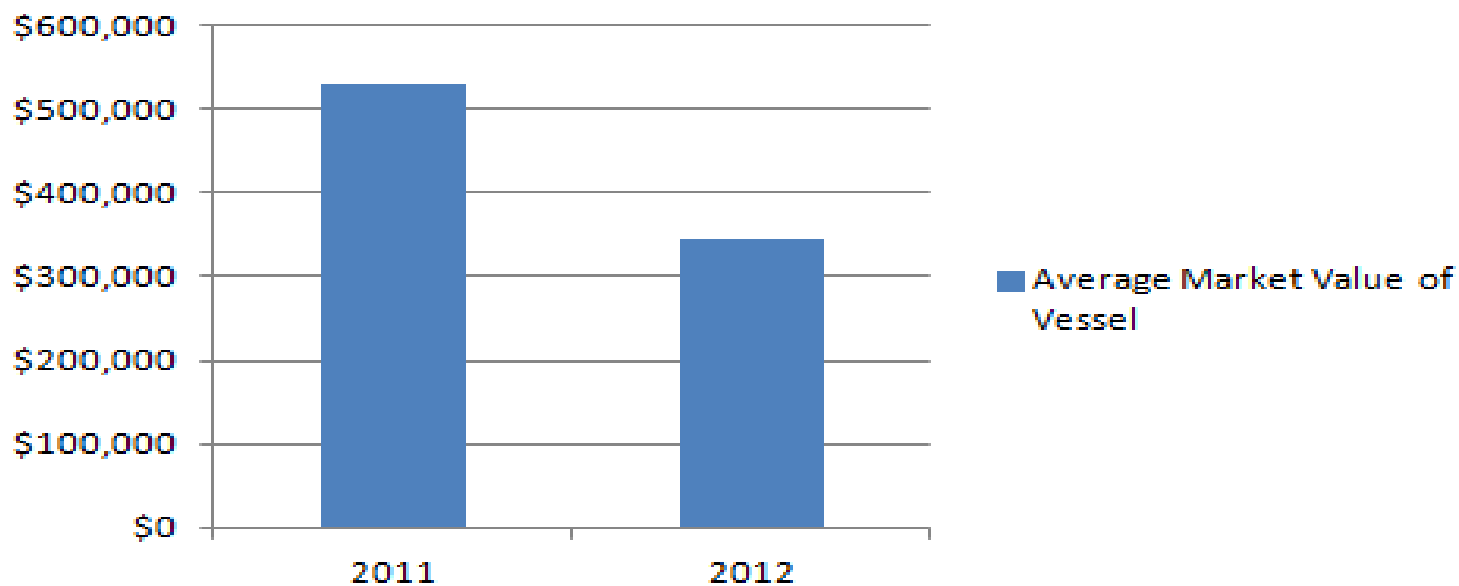






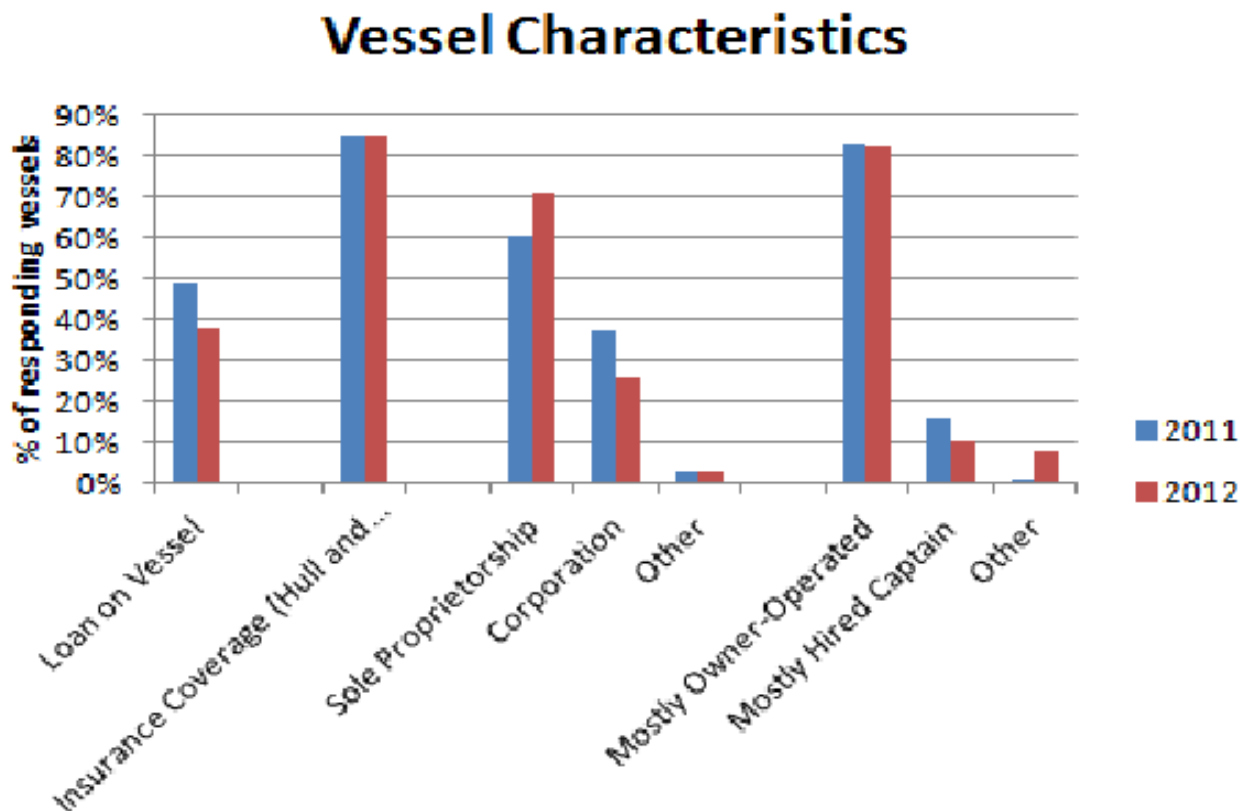
## Preliminary Results Reported Market Value of Vessel (includes gear, permits, history)

**Average Market Value of Vessel**





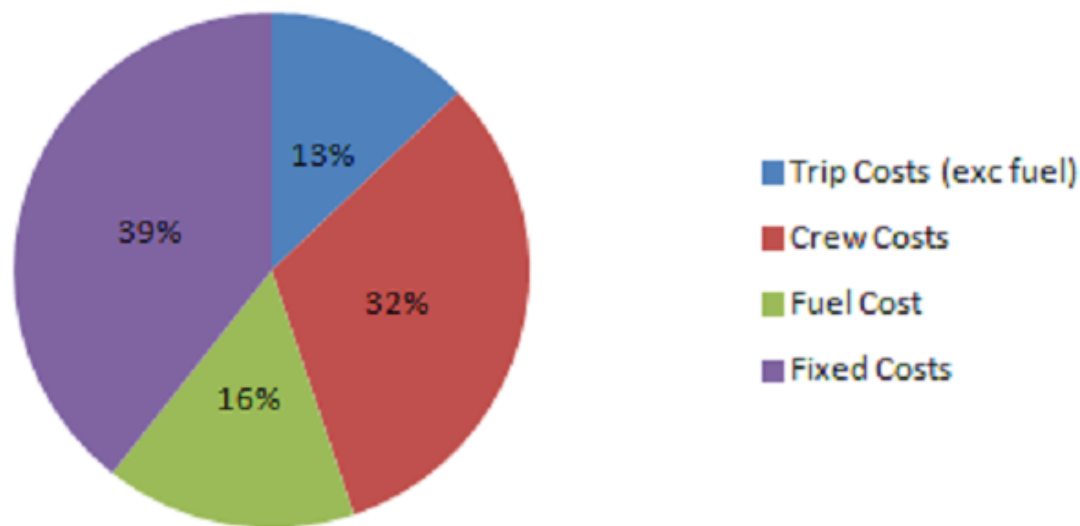
## Preliminary Results Vessel Characteristics (all responding vessels)





## Preliminary Results Breakdown of Total Costs (all responding vessels in Year 1 for costs incurred in 2011)

### Breakdown of Total Annual Costs for 2011



**PRELIMINARY RESULTS**  
**SUMMARY VALUES BY VESSEL LENGTH**  
**FOR 2011 and 2012**  
**All Gear Groups Combined**

Average Values of Cost Components by Vessel Length for Responding Vessels (2011 and 2012)

YEAR	Vessel Length	Repair/Maintenance	Upgrade/Imp (after depreciation)	Business	Operating/Trip
2011	Small (<40')	\$9,135	\$11,357	\$14,802	\$22,805
	Medium (40' to 80', inclusive)	\$27,684	\$23,626	\$44,471	\$72,735
	Large (>80')	\$97,486	\$68,583	\$251,656	\$411,397
2012	Small (<40')	\$9,843	\$1,785	\$12,773	\$22,303
	Medium (40' to 80', inclusive)	\$27,669	\$3,132	\$42,102	\$76,612
	Large (>80')	\$76,128	\$4,558	\$174,791	\$207,092

Note: At this time, values for 2011 and 2012 should not be strictly compared due to small changes to the survey instrument.

**PRELIMINARY RESULTS**  
**SUMMARY VALUES BY GEAR GROUP AND VESSEL SIZE**  
**FOR 2012**

**Gear Group: Dredge**  
**Average Vessel Length= 72 feet**

DREDGE (includes all non-zero reported costs for 2012)								
	REVENUES							
	Larger than Average Vessels				Smaller than Average Vessels			
	Freq	Mean	Min	Max	Freq	Mean	Min	Max
Total Revenue Calculated	14	\$1,584,288	\$93,639	\$2,986,609	4	\$286,152	\$479	\$772,806
Total Reported Revenue	14	\$1,530,448	\$1,700	\$3,077,401	4	\$424,916	\$150,000	\$899,663
	MAJOR COST COMPONENTS							
	Larger than Average Vessels				Smaller than Average Vessels			
	Freq	Mean	Min	Max	Freq	Mean	Min	Max
Repair/Main	14	\$72,911	\$7,200	\$176,519	4	\$22,008	\$12,250	\$32,081
Upgrade/Improvements (after depreciation)	10	\$5,837	\$1,629	\$23,581	2			
Fishing Business	14	\$176,842	\$9,350	\$434,255	4	\$74,675	\$38,974	\$104,125
Operating/Trip	14	\$180,049	\$32,885	\$436,023	4	\$81,091	\$29,400	\$221,140
Crew								

# **SUMMARY VALUES BY GEAR GROUP AND VESSEL SIZE** **FOR 2012**

**Gear Group: Gillnet**  
**Average Vessel Length = 40 feet**

Gillnet (includes all non-zero reported costs for 2012)								
	REVENUES							
	Larger than Average Vessels				Smaller than Average Vessels			
	Freq	Mean	Min	Max	Freq	Mean	Min	Max
Total Revenue Calculated	14	\$183,376	\$11,427	\$610,839	13	\$33,298	\$247	\$130,810
Total Reported Revenue	11	\$238,832	\$33,000	\$640,000	10	\$75,563	\$20,000	\$170,000
	MAJOR COST COMPONENTS							
	Larger than Average Vessels				Smaller than Average Vessels			
	Freq	Mean	Min	Max	Freq	Mean	Min	Max
Repair/Main	14	\$28,202	\$5,475	\$55,207	13	\$12,136	\$1,200	\$41,700
Upgrade/Improvements (after depreciation)	7	\$1,048	\$71	\$3,533	9	\$2,073	\$198	\$9,083
Fishing Business	14	\$22,038	\$3,650	\$75,545	13	\$11,062	\$200	\$36,900
Operating/Trip	14	\$43,454	\$1,950	\$113,930	12	\$9,534	\$600	\$29,200
Crew								

# **SUMMARY VALUES BY GEAR GROUP AND VESSEL SIZE** **FOR 2012**

**Gear Group: Trawl**

**Average Vessel Length = 61 feet**

Trawl (includes all non-zero reported costs for 2012)								
	REVENUES							
	Larger than Average Vessels				Smaller than Average Vessels			
	Freq	Mean	Min	Max	Freq	Mean	Min	Max
Total Revenue Calculated	20	\$561,322	\$30,246	\$1,277,862	12	\$150,154	\$2,924	\$607,577
Total Reported Revenue	19	\$599,354	\$27,610	\$1,100,000	10	\$196,873	\$4,500	\$751,130
	MAJOR COST COMPONENTS							
	Larger than Average Vessels				Smaller than Average Vessels			
	Freq	Mean	Min	Max	Freq	Mean	Min	Max
Repair/Main	20	\$48,293	\$5,150	\$128,977	12	\$14,294	\$200	\$47,000
Upgrade/Improvements (after depreciation)	13	\$4,191	\$357	\$10,276	9	\$1,900	\$71	\$6,643
Fishing Business	20	\$127,802	\$500	\$339,287	12	\$54,210	\$550	\$264,564
Operating/Trip	19	\$227,205	\$15,000	\$538,313	12	\$41,077	\$7,110	\$96,750
Crew								



# **SUMMARY VALUES BY GEAR GROUP AND VESSEL SIZE** **FOR 2012**

**Gear Group: Pot/Trap**  
**Average Vessel Length = 38 feet**

Pot/Trap (includes all non-zero reported costs for 2012)								
	REVENUES							
	Larger than Average Vessels				Smaller than Average Vessels			
	Freq	Mean	Min	Max	Freq	Mean	Min	Max
Total Revenue Calculated	92	\$166,671	\$2,027	\$810,868	128	\$107,590	\$196	\$797,149
Total Reported Revenue	84	\$234,777	\$49	\$1,700,000	109	\$114,256	\$150	\$385,000
	MAJOR COST COMPONENTS							
	Larger than Average Vessels				Smaller than Average Vessels			
	Freq	Mean	Min	Max	Freq	Mean	Min	Max
Repair/Main	89	\$23,676	\$2,400	\$148,830	126	\$10,823	\$185	\$43,050
Upgrade/Improvements (after depreciation)	57	\$3,391	\$43	\$22,071	84	\$1,785	\$18	\$9,190
Fishing Business	91	\$22,965	\$1,700	\$148,000	128	\$13,791	\$400	\$55,008
Operating/Trip	90	\$61,641	\$200	\$407,000	123	\$26,394	\$200	\$70,150
Crew								



# **SUMMARY VALUES BY GEAR GROUP FOR 2012**

**Gear Group: Handgear**

**Average Vessel Length=39 feet**

Handgear (includes all non-zero reported costs for 2012)								
	REVENUES							
	Larger than Average Vessels				Smaller than Average Vessels			
	Freq	Mean	Min	Max	Freq	Mean	Min	Max
Total Revenue Calculated	7	\$12,634	\$660	\$37,644	43	\$10,840	\$15	\$120,810
Total Reported Revenue	4	\$104,235	\$18,636	\$200,000	38	\$27,401	\$700	\$150,000
	MAJOR COST COMPONENTS							
	Larger than Average Vessels				Smaller than Average Vessels			
	Freq	Mean	Min	Max	Freq	Mean	Min	Max
Repair/Main	7	\$13,296	\$3,027	\$50,345	41	\$5,959	\$50	\$37,000
Upgrade/Improvements (after depreciation)	2				25	\$631	\$64	\$2,036
Fishing Business	7	\$11,673	\$7,670	\$15,800	43	\$8,281	\$380	\$52,858
Operating/Trip	7	\$17,891	\$4,714	\$38,300	42	\$8,293	\$75	\$33,800
Crew								

## **SUMMARY VALUES BY GEAR GROUP FOR 2012**

**Gear Group: Longline**

**Average Vessel Length=47 feet**

Longline (includes all non-zero reported costs for 2012)				
REVENUES				
	Freq	Mean	Min	Max
Total Revenue Calculated	3	\$190,142	\$47,859	\$402,102
Total Reported Revenue	2			
MAJOR COST COMPONENTS				
	Freq	Mean	Min	Max
Repair/Main	3	\$13,958	\$5,506	\$24,468
Upgrade/Improvements (after depreciation)	1			
Fishing Business	3	\$26,443	\$5,650	\$57,125
Operating/Trip	3	\$60,639	\$8,700	\$142,650
Crew				

## **SUMMARY VALUES BY GEAR GROUP FOR 2012**

**Gear Group: Purse/Seine**

**Average Vessel Length=60 feet**

<b>Purse/Seine (includes all non-zero reported costs for 2012)</b>				
<b>REVENUES</b>				
	Freq	Mean	Min	Max
Total Revenue Calculated	3	\$936,896		
Total Reported Revenue	2			
<b>MAJOR COST COMPONENTS</b>				
	Freq	Mean	Min	Max
Repair/Main	3	\$70,333		
Upgrade/Improvements (after depreciation)	2			
Fishing Business	3	\$74,000		
Operating/Trip	3	\$56,061		
Crew				



## **Moving Forward with the Cost Data**

- Additional descriptive statistical analysis
  - Tests for differences in vessel characteristics for vessels that responded to the survey effort versus those that did not.
  - Combining the 2011 and 2012 cost data.
- Development of profitability profiles for various segments of the fleet, beginning with groundfish.
  - Have we missed something?
  - Profitability profiles at the port level?
  - Approach: Economic Profit or Financial/Accounting Profit?



## **Additional Information**

For information about performances measures or data collection efforts, please contact:

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Visit SSB on the web for updates on this project and other SSB work:

<http://www.nefsc.noaa.gov/read/socialsci/>



## **Additional Information**

For a copy of the Northeast Fishing Vessel Annual Cost Survey for 2012, please go to:

[http://www.nefsc.noaa.gov/read/socialsci/pdf/Annual\\_Cost\\_Survey\\_Final  
Version\\_April\\_24\\_2013.pdf](http://www.nefsc.noaa.gov/read/socialsci/pdf/Annual_Cost_Survey_Final_Version_April_24_2013.pdf)